

VIEWPOINT

Human Papillomavirus Vaccination and School Entry Requirements Politically Challenging, but Not Impossible

Ellen Daley, PhD, MPH
Community and Family Health Concentration, College of Public Health, University of South Florida, Tampa.

Erika Thompson, PhD, MPH
Department of Health Behavior & Health Systems, School of Public Health, University of North Texas Health Science Center, Fort Worth.

Gregory Zimet, PhD
Department of Pediatrics, Indiana University School of Medicine, Indianapolis.

Anogenital and oropharyngeal cancers that are attributed to oncogenic strains of the human papillomavirus (HPV) number approximately 31 500 per year in the United States (<https://www.cdc.gov/cancer/hpv/statistics/cases.htm>), and despite the availability of a safe and effective HPV vaccine that protects against these strains, the United States has a disappointing record of vaccine uptake after more than a decade of promoting the vaccine for adolescents.

To date, national strategies to improve HPV vaccine uptake have centered primarily on health care clinicians (pediatricians, obstetrician-gynecologists, and family practice physicians) and campaigns to encourage and train primary care practitioners on HPV vaccination; the returns on these campaigns have been modest. Data from 2016 showed that 60.4% of adolescents aged 13 to 17 years received at least 1 dose of the vaccine, and only 43.4% of adolescents were up to date with the vaccine.¹ Focusing solely on individual- and interpersonal-level strategies (ie, the medical clinician and the parent) limits the opportunity to reach the level of HPV vaccine coverage that is desired in the United States and that has been achieved by other nations that have developed successful HPV immunization programs, such as Australia, Canada, and the United Kingdom.

After more than a decade of promoting a strategy that is not sufficient, additional approaches to improving vaccine uptake should be considered. One of the most obvious tactics would be promoting and implementing state-level school entry requirements for the HPV vaccine along with other adolescent vaccines, such as the tetanus-diphtheria-pertussis vaccine, that already are required for middle school entry in most states.² However, discussions related to including HPV vaccine school entry requirements at a policy level are not only rare, but are also often overlooked, such as in the case of the 2014 report of the President's Cancer Panel.³ The panel described the low vaccine rates and recommended 3 goals for increasing rates in the United States that focused on clinician-based vaccination strategies, such as developing communication programs that are associated with the HPV vaccine for physicians. There is a brief mention of school-based and school-located programs, which have been successful in other countries, but the panel concluded that there are too many barriers to implementing those programs in the United States. However, there was a caveat that stated "Furthermore, if vaccination rates in the United States do not improve dramatically over the next several years, the feasibility of school-located vaccination should be reexamined."³

Limiting discussions to only school-located programs does not encompass the broader approach of implementing school entry requirements for HPV vaccination, which still involves the same interaction between parents and health care clinicians. In fact, a school-entry approach has the added "incentive" for both parents and clinicians that the vaccine is now required before beginning middle school. At the time of the President's Cancer Panel report, there had been limited success with HPV vaccine school entry policies, and until the recent program enacted in Rhode Island in 2015, it would have been difficult to provide an evidence-based argument for adding these policies to the broader strategies. Virginia and the District of Columbia instituted earlier policies in 2008 and 2009, respectively, but with generous opt-out provisions and, in the case of Virginia, no consequences for nonvaccination. Not surprisingly, these policies were not particularly effective, demonstrating that limited policies do not work.⁴ Furthermore, evidence with other vaccines shows that broadening opt-out provisions leads to lower vaccination rates and outbreaks of vaccine-preventable infections.⁵ However, the Rhode Island program requires HPV vaccine initiation before seventh grade, is gender-neutral, and has also implemented a more restrictive exemption strategy to opt out of vaccinations than previous programs, such as the one implemented in Virginia.⁶ Results of the Rhode Island initiative are impressive, with a vaccination initiation rate of 90% and 88% among girls and boys, respectively,¹ and an increased predicted vaccine initiation rate of 11% among adolescent boys compared with boys in other states after the policy implementation.⁷ No similar change was found for girls in Rhode Island, as the vaccination rate was already high, which was likely the result of a "ceiling effect" of an already impressive vaccine program. However, replicating this approach of gender-neutral school entry has the potential to improve uptake overall and may help ameliorate gender disparities in vaccination.

Promoting school entry campaigns on a state-by-state basis may seem daunting, but 2 factors may mitigate that concern: the continued efforts to improve the current strategy of clinician recommendation and the successful efforts, such as the Rhode Island program, that may encourage vaccine coalitions in other states to promote similar programs. At present, statewide efforts may lack the collaborative political will to pursue HPV vaccine school entry requirements, but supplementing the current efforts is critical. Depending solely on clinician recommendations for the HPV vaccination

Corresponding Author: Ellen Daley, PhD, MPH, University of South Florida College of Public Health, 13201 Bruce B. Downs Blvd, MDC 56, Tampa, FL 33612 (edaley@health.usf.edu).

has proven insufficient. Unlike clinician rates for required vaccines, which exceed 80%, the rates of HPV vaccination are both lower and inconsistent.¹ Moreover, clinician recommendations and school entry requirements can be complementary HPV vaccination approaches. When school entry vaccination becomes a policy, it removes the burden from the clinician to recommend the vaccine and encourages parents to vaccinate their children. These 2 approaches would act complementarily with one another.

So what is the way forward? First, get the critical medical professional organizations, such as the American Medical Association, the American Academy of Pediatrics, the American College of Obstetricians and Gynecologists, and the American Academy of Family Physicians, to endorse a move toward school entry requirements for HPV vaccination. Commendations from these groups will provide the needed reassurance to parents and clinicians that this vaccine is as important and necessary as any other vaccine that their child receives. Second, identify stakeholders statewide, including local vaccine coalitions, who can work together with policy makers to implement a state-level school entry requirement. This effort to create the political will that is necessary for a new policy is critical and would also act to reassure parents and clinicians.

What we do know is that when school entry programs are implemented correctly in the United States, they work well. Despite the barriers to instituting school entry requirements, we should not stop promoting them just because it is a challenging task. To paraphrase the President's Cancer Panel of 2014, vaccination rates in the United States have not improved dramatically in the past several years since that report was written. Thus, reexamining strategies that are associated with school-based and school entry programs is overdue. There is evidence that school entry requirements can be effective tools in complementing the existing clinician-focused approach. To protect children from preventable cancers, such as those caused by HPV, we need a robust, multilayered plan that includes ongoing research into public opinions about the vaccine and school entry requirements and the development of effective strategies to communicate with the public about the value of HPV vaccine school entry requirements for promoting personal and public health. In addition, the promotion of school entry requirements should include strict opt-out provisions that are similar to other vaccines, continued training and implementation programs for health care clinicians, and messaging campaigns to encourage parents to vaccinate their children against HPV.

ARTICLE INFORMATION

Published Online: November 5, 2018.
doi:10.1001/jamapediatrics.2018.3327

Conflict of Interest Disclosures: Dr Daley has served as a member of the US Human Papillomavirus Vaccine advisory board (Science and Policy) of Merck Pharmaceutical Corporation and received travel support and a stipend from Merck for participating on this board. Dr Zimet has served as an investigator on investigator-initiated human papillomavirus vaccine research funded by Merck Pharmaceutical Corporation and received travel support from Merck to present research findings at a scientific meeting. He has also received an honoraria for serving as a member of the Adolescent Immunization Initiative, which is cosponsored by Sanofi Pasteur and the Immunization Action Coalition. No other disclosures are reported.

REFERENCES

1. Walker TY, Elam-Evans LD, Singleton JA, et al. National, regional, state, and selected local area vaccination coverage among adolescents aged 13-17 years—United States, 2016. *MMWR Morb Mortal Wkly Rep*. 2017;66(33):874-882. doi:10.15585/mmwr.mm6633a2
2. Ferris DG. Change suboptimal tactics and promote a national mandatory human papillomavirus vaccination program. *J Low Genit Tract Dis*. 2016;20(4):348-351. doi:10.1097/LGT.0000000000000247
3. Accelerating HPV Vaccine Uptake. *Urgency for Action to Prevent Cancer. A Report to the President of the United States from the President's Cancer Panel*. Bethesda, MD: National Cancer Institute; 2014.
4. Perkins RB, Lin M, Wallington SF, Hanchate AD. Impact of school-entry and education mandates by states on HPV vaccination coverage: analysis of the 2009-2013 National Immunization Survey-Teen. *Hum Vaccin Immunother*. 2016;12(6):1615-1622. doi:10.1080/21645515.2016.1150394
5. Atwell JE, Van Otterloo J, Zipprich J, et al. Nonmedical vaccine exemptions and pertussis in California, 2010. *Pediatrics*. 2013;132(4):624-630. doi:10.1542/peds.2013-0878
6. Barraza L, Weidenaar K, Campos-Outcalt D, Yang YT. Human papillomavirus and mandatory immunization laws: what can we learn from early mandates? *Public Health Rep*. 2016;131(5):728-731. doi:10.1177/0033354916663184
7. Thompson EL, Livingston MDI, Daley EM, Zimet GD. Human papillomavirus vaccine initiation for adolescents following Rhode Island's school-entry requirement, 2010-2016 [published online July 19, 2018]. *Am J Public Health*. doi:10.2105/AJPH.2018.304552